506679151 05/24/2021

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT6725968

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
SEAN D. BURNS	10/31/2016
LAWRENCE A. CLEVENGER	10/31/2016
MATTHEW E. COLBURN	11/03/2016
NELSON M. FELIX	10/31/2016
SIVANANDA K. KANAKASABAPATHY	10/18/2016
CHRISTOPHER J. PENNY	10/31/2016
ROGER A. QUON	10/31/2016
NICOLE A. SAULNIER	10/31/2016

RECEIVING PARTY DATA

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Street Address:	1 ORCHARD ROAD	
City:	ARMONK	
State/Country:	NEW YORK	
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PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	17328569

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	X05-0096USC4
NAME OF SUBMITTER:	JILL HUGHES
SIGNATURE:	/Jill Hughes/

PATENT 506679151 REEL: 056332 FRAME: 0177

DATE SIGNED:	05/24/2021	
	This document serves as an Oath/Declaration (37 CFR 1.63).	
Total Attachments: 6	•	
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PATENT REEL: 056332 FRAME: 0178

DECLARATION (37 C.F.R. 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76) AND ASSIGNMENT

Title of Invention: SELF ALIGNED PATTERN FORMATION POST SPACER ETCHBACK IN TIGHT PITCH CONFIGURATIONS

As a below named and undersigned inventor, I hereby declare that:
This declaration is directed to the attached application, or (if following box is checked):
[] United States application or PCT international application number

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR Section 1.56.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

Page 1 of 3

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

(1)	Legal Name of Inventor: [SEAN D. BURNS]			
	Signature: S D Sz.	*********	_Date:	12/31/2016
(2)	Legal Name of Inventor: [LAWRENCE A, CLEVENGER]			
	Signature:	 00000000	Date:	
(3)	Legal Name of Inventor: [MATTHEW E. COLBURN]			
	Signature:	 minn	_Date:	
(A)	Legal Name of Inventor: [NELSON M. FELIX]			
	Signature:	******	_Date:	

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

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(1) Legal Name of Inventor: [SEAN D. BURNS]	
Signature:	Date:
(2) Legal Name of Inventor: [LAWRENCE A. CLEVENGER]	
Signature: Lave A. Cluys	Date: 10/31/16
(3) Legal Name of Inventor: [MATTHEW E. COLBURN]	
Signature:	Date:
(4) Legal Name of Inventor: [NELSON M. FELIX]	
Signature:	Date:

IBM DOCKET NUMBER: YOR9201606941 St (165-1290)

I acknowledge my prior and ongoing obligations to self, assign, and transfer my rights order this Ausignment to the ASSIGNEE and am unaware of any reason why I may not have the full and uncacumbered right to self, assign, and transfer my rights hereby sold, assigned, and transferred and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns the right to insert in this Assignment any further identification (including, but not limited to patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the state of New York, and any disputes will be resolved in a New York state court or federal court stied in New York.

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(1) Legal Name of Inventor: [SEAN D. BURNS]		
Signature	Date:	
(2) Legal Name of Inventor [LAWRENCE A, CLEVENGER]		
Signature:	Date:	
3) Legal Name of Inventor: [MATTHEW E. COLBURN] Signature:	11/-	1
Signature: / / / / / / / / / / / / / / / / / / /	Date:/3	12016
Signature	Date	

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

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(1)	Legal Name of Inventor: [SEAN D. BURNS]	
	Signature:	Date:
(2)	Legal Name of Inventor: [LAWRENCE A. CLEVENGER]	
	Signature:	Date:
(3)	Legal Name of Inventor: [MATTHEW E. COLBURN]	
	Signature:	Date:
(4)	Legal Name of Inventor: [NELSON M. FELIX]	
	Signature:	Date: 10-31-16

(5) Legal Name of Inventor: [SIVANANDA K. KANAKASABAPATHY]	
Signature:	
(6) Legal Name of Inventor: [CHRISTOPHER J. PENNY]	E S
Signature: A — — — — — — — — — — — — — — — — — —	
(7) Legal Name of Inventor: [ROGER A. QUON]	
Signature:	Date:
(8) Legal Name of Inventor: [NICOLE A. SAULNIER]	
Signature: New A Sque Ince	Date: 10/31/2016